Comparison of Disease Severity Between Outbreaks of Known and Unknown Etiology with >=10 Ill Persons, FoodNet Sites, 1999-2000

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Background: Approximately 550 foodborne disease outbreaks are reported to CDC annually and two-thirds of these have an unknown etiology. Several factors, including disease severity and specimen collection and testing, are thought to contribute to a successful investigation.

Methods: To compare disease severity between outbreaks of known and unknown etiology with > 10 ill persons, we reviewed outbreak data collected in FoodNet sites in 1999 and 2000. FoodNet, the CDC's Foodborne Diseases Active Surveillance Network, includes Connecticut, Georgia, Minnesota, and Oregon and portions of California, Maryland, New York, and Tennessee, representing approximately 29 million persons (11 % of the United States population). A foodborne outbreak is defined as two or more cases of a similar illness resulting from ingestion of a common food. Etiology was determined using the guidelines for confirming a foodborne disease outbreak [MMWR 2000; 49(No. SS-1):54-61].

Results: From 1999 to 2000, 185 foodborne disease outbreaks with >10 ill were reported from FoodNet sites. Six outbreaks of > 10 ill persons per million population were reported in FoodNet (range 2 per million persons in TN to 11 per million persons in MN.) Of these, 96 (52%) were outbreaks with a known etiology. Among these, 57 (59%) were due to Norwalk-like virus, 17 (18%) to *Salmonella* spp., 6 (6%) to *Escherichia coli* O157, and 16 (17 %) to other etiologies. Among the 96 outbreaks of known etiology, the median number of persons with vomiting was 12 (range 0 to 186), with diarrhea was 18 (range 0 to 243), and with fever was 9 (range 0 to 148). Among the 89 outbreaks of unknown etiology, the median number of persons with vomiting was 11 (range 0 to 72), with diarrhea was 14 (range 1 to 72), and with fever was 5 (range 0 to 30). In 18 (19%) outbreaks of known etiology, 50% or more of those ill sought health care; this compares to 2 (2 %) outbreaks of unknown etiology. Outbreaks with a known etiology were also more likely to be outbreaks where > 50% of those ill were hospitalized [4 (4%) outbreaks vs. 0 (0%) outbreak] and where > 25%of those ill had bloody diarrhea [14 (15%) vs. 1 (1%)].

Conclusions: A little more than half of the foodborne disease outbreaks with > 10 ill persons reported to FoodNet from 1999 to 2000 had a known etiology. Outbreaks of known etiology were more likely to result in health care visits, hospitalizations, and bloody diarrhea, possibly prompting a more aggressive investigation including microbial testing. Additional efforts are needed to determine the etiology of outbreaks with less severe symptoms. The use of courier services and mail-in kits to increase the number of clinical specimens submitted for etiologic testing during outbreaks may increase pathogen yield in outbreaks where patients are less likely to seek medical care.

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